

WHAT IS CLAIMED IS:

1. A polishing pad comprising:
a polishing body comprising a material wherein said material
is a cross-linked polymer.
2. The polishing pad as recited in Claim 1 wherein said
cross-linked polymer is a thermoplastic foam.
3. The polishing pad as recited in Claim 1 wherein said
cross-linked polymer has a closed cell structure.
4. The polishing pad as recited in Claim 3 wherein said
cross-linked polymer is polyethylene.
5. The polishing pad as recited in Claim 1 wherein said
polishing body includes a base pad and said cross-linked polymer
forms a polishing surface located over said base pad.
6. The polishing pad as recited in Claim 1 wherein said
cross-linked polymer is a polyethylene having a closed cell
structure.
7. The polishing pad as recited in Claim 1 wherein said
cross-linked polymer has a hardness ranging from about 34 Shore A

9. A polishing apparatus comprising:

a mechanically driven carrier head;

a polishing platen, said carrier head being positionable against said polishing platen to impart a polishing force against said polishing platen; and

a polishing pad attached to said polishing platen and including a polishing body comprising a material wherein said material is a cross-linked polymer.

10. The polishing apparatus as recited in Claim 9 wherein said cross-linked polymer has a closed cell structure.

11. The polishing apparatus as recited in Claim 9 wherein said cross-linked polymer is polyethylene.

12. The polishing apparatus as recited in Claim 9 wherein said polishing body includes a base pad and said cross-linked polymer forms a polishing surface located over said base pad.

13. The polishing apparatus as recited in Claim 9 wherein said cross-linked polymer is a polyethylene having a closed cell structure.

14. The polishing apparatus as recited in Claim 9 wherein

2 said cross-linked polymer has a hardness ranging from about 34
3 Shore A to about 60 Shore A.

15. The polishing apparatus as recited in Claim 9 wherein
2 said cross-linked polymer has a selectivity of Cu to Ta removal
3 rates of greater than about 27:1.

Year	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100
1990	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100

16. A method of polishing a substrate comprising:

positioning a substrate having at least one layer of material located thereon against a polishing pad attached to a polishing apparatus wherein said polishing pad includes a polishing body comprising a cross-linked polymer; and

polishing said at least one layer of material against said polishing pad.

17. The method as recited in Claim 16 wherein polishing said at least one layer of material includes polishing a metal layer.

18. The method as recited in Claim 16 wherein polishing said metal layer includes polishing a layer selected from the group containing:

copper; and
tungsten.

19. The method as recited in Claim 16 wherein said substrate includes another layer located under said metal layer and polishing includes removing said metal layer and removing at least a portion of said another layer and said method further includes determining an endpoint of said polishing of said metal layer by determining a change in a coefficient of friction between said metal layer and said another layer.

20. The method as recited in Claim 16 wherein said substrate
2 includes another layer located under said metal layer and polishing
3 includes removing said metal layer and removing at least a portion
4 of said another layer and said method further includes determining
5 an endpoint of said polishing of said metal layer by determining a
6 change in an acoustic signal between said metal layer and said
7 another layer.

21. The method as recited in Claim 16 wherein positioning a
2 substrate includes positioning a substrate located on a
3 semiconductor wafer against said polishing pad.

22. The method as recited in Claim 16 wherein said cross-
2 linked polymer has a closed cell structure.

23. The method as recited in Claim 16 wherein said cross-
2 linked polymer is polyethylene.

24. The method as recited in Claim 16 wherein said polishing
2 body includes a base pad and said cross-linked polymer forms a
3 polishing surface located over said base pad.

25. The method as recited in Claim 16 wherein said cross-

2 linked polymer is a polyethylene having a closed cell structure.

26. The method as recited in Claim 16 wherein said cross-
2 linked polymer has a hardness ranging from about 34 Shore A to
3 about 60 Shore A.

27. The method as recited in Claim 16 wherein cross-linked
2 polymer has a selectivity of Cu to Ta removal rates of greater than
3 about 27:1.